```matlab
clear;
k1=2;
k2=2;
z=1/exp(k1+k2);
alpha= 0.5;
s=0;
h= alpha/(1-alpha);
at=0.5;
a=at/(2*((pi)^0.5));
b=0.5;
hold on;
g2=2;
a2=(1+k2)/g2;
ka=1;
res1=1;
for g1_db= 0 :5 :50 ;
g1= 10^(0.1*g1_db);
a1=(1+k1)/g1;
p= a1*a2/(h*b);
for i= 1:10
for j= 1:10
s= s+ ((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))^2)*meijerG([1,1/2],[],[i,j],[0],p);
end
end
res1= s*exp(-k1-k2)*a;
fin(ka)=res1;
res1=1;
s=0;
ka=ka+1;
end
qw= 0:5:50;
plot(qw,fin)
set(gca,'Yscale','log')
xlabel("SNR db")
ylabel("BER")
title("BER vs SNR for different fading channels")
%2 type
k1=0;
k2=0;
z=1/exp(k1+k2);
 alpha= 0.5;
s=0;
disp("alpha"+alpha)
h= alpha/(1-alpha);
at=0.5;
a=at/(2*((pi)^0.5));
b=0.5;
a1=1;
a2=1;
%g1=
%g2=2;
```

```matlab
%a2=(1+k2)/g2;
%e=1/(1-alpha);
%y=2^(e)-1;
%y=1;
k=1;
res=1;
hold on;
for snr_db= 0 :5 :50 ;
snr= 10^(0.1*snr_db);
%disp("res bfr loop begins "+res)
%disp("s bfr loop begins "+s)
%a1=(1+k1)/g1;
p= a1*a2/(h*snr*b);
for i= 1:10
for j= 1:10
s= s+ ((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))^2)*meijerG([1,1/2],[],[i,j],[0],p);
end
end
res= s*exp(-k1-k2)*a;
%disp( " g1 value " +g1); %disp( " a1 value " +a1);
%disp( " res is "+res);
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0:5:50;
plot(qw,fin)
%legend('Rayleigh')
% 3 type
k1=0;
k2=0;
z=1/exp(k1+k2);
 alpha= 0.5;
s=0;
disp("alpha"+alpha)
h= alpha/(1-alpha);
at=0.5;
a=at/(2*((pi)^0.5));
b=0.5;
a1=1;
a2=1;
%g1=
%g2=2;
%a2=(1+k2)/g2;
%e=1/(1-alpha);
%y=2^(e)-1;
%y=1;
m=2;
k=1;
res=1;
hold on;
for snr_db= 0 :5 :50 ;
```

```matlab
snr= 10^(0.1*snr_db);
%disp("res bfr loop begins "+res)
%disp("s bfr loop begins "+s)
%a1=(1+k1)/g1;
p= a1*a2/(h*snr*b);
for i= 1:10
for j= 1:10
s= s+ ((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))*(factorial(i-1+m)*factorial(j-1+m)))*meijerG([1,1
[],[i+m-1,j+m-1],[0],p);
end
end
res= s*exp(-k1-k2)*a;
%disp( " g1 value " +g1); %disp( " a1 value " +a1);
%disp( " res is "+res);
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0:5:50;
plot(qw,fin);

% 4 type
k12=0;
k22=0;
z=1/exp(k12+k22);
 alpha= 0.5
s=0;
%disp("alpha"+alpha)
h= alpha/(1-alpha);
at=0.5;
a=at/(2*((pi)^0.5));
b=0.5;
m=2;
k=1;
res2=1;
for snr_db= 0 :5 :50 ;
snr= 10^(0.1*snr_db);
p=(m^2)/(h*snr*b);
s=a*meijerG([1,0.5],[],[m,0],[m],p);
res2= s;
%disp( " g1 value " +g1); %disp( " a1 value " +a1);
%disp( " res is "+res);
fin2(k)=res2;
res2=1;
s=0;
k=k+1;
end
qw2= 0:5:50;
plot(qw2,fin2)
legend({'Rician','Rayleigh','Kappa-Mu','Nakagami'},'Location',"best")

alpha0.5
```
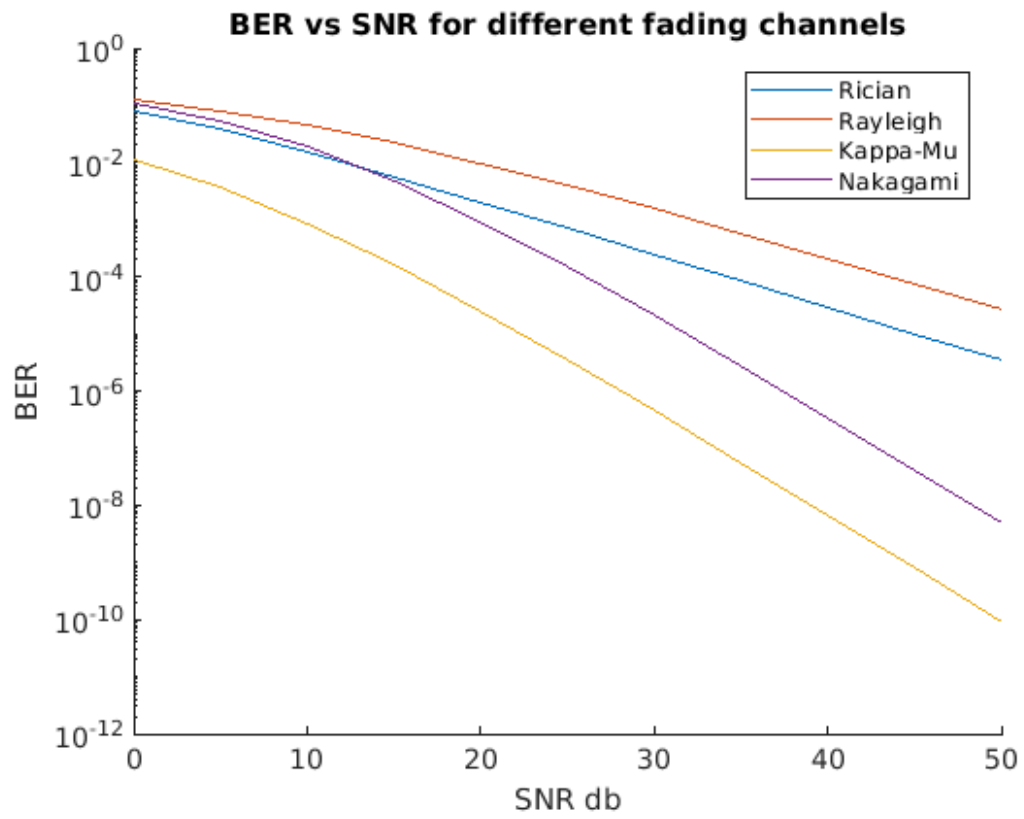
```
alpha0.5

alpha =

    0.5000
```

BER vs SNR for different fading channels

Published with MATLAB® R2021a